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Hypnosis for smoking cessation: A randomized trial

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The purpose of this study was to determine whether hypnosis would be more effective in helping smokers quit than standard behavioral counseling when both interventions are combined with nicotine patches (NP). A total of 286 current smokers were enrolled in a randomized controlled smoking cessation trial at the San Francisco Veterans Affairs Medical Center. Participants in both treatment conditions were seen for two 60-min sessions, and received three follow-up phone calls and 2 months of NP. At 6 months, 29% of the hypnosis group reported 7-day point-prevalence abstinence compared with 23% of the behavioral counseling group (relative risk [RR]=1.27; 95% confidence interval, *CI* 0.84–1.92). Based on biochemical or proxy confirmation, 26% of the participants in the hypnosis group were abstinent at 6 months compared with 18% of the behavioral group (RR=1.44; 95% *CI* 0.91–2.30). At 12 months, the self-reported 7-day point-prevalence quit rate was 24% for the hypnosis group and 16% for the behavioral group (RR=1.47; 95% *CI* 0.90–2.40). Based on biochemical or proxy confirmation, 20% of the participants in the hypnosis group were abstinent at 12 months compared with 14% of the behavioral group (RR=1.40; 95% *CI* 0.81–2.42). Among participants with a history of depression, hypnosis yielded significantly higher validated point-prevalence quit rates at 6 and 12 months than standard treatment. It was concluded that hypnosis combined with NP compares favorably with standard behavioral counseling in generating long-term quit rates.

Introduction

Hypnosis has been used to help people to quit smoking for many years (Green, 1996, 1999) and is considered by some experts to be a form of complementary and alternative medicine for smoking cessation (Sood, Ebbert, Sood, & Stevens, 2006). In recent studies (Green, 1999), hypnosis has been shown to yield quit rates that are comparable with those for multi-component treatments combining counseling and nicotine replacement. However, the evidence has not been considered strong enough to include hypnosis as an evidence-based intervention in the most recent smoking cessation clinical practice guidelines (Abbott, Stead, White, Barnes, & Ernst, 2000; Fiore et al., 2000; Ranney, Melvin, Lux, McClain, & Lohr, 2006). Well-controlled studies of the efficacy of hypnosis for smoking cessation are lacking (Lynn, Neufeld, Rhue, & Matorin, 1993). Few of the studies investigating the efficacy of hypnosis for smoking cessation have used biochemical methods such as cotinine assays to verify abstinence from smoking or have conducted follow-up evaluations beyond 6 months (Holroyd, 1980). In addition, many of the clinical reports of hypnosis for smoking cessation have provided little detailed information regarding the characteristics of participants (e.g., smoking history, hypnotizability), treatment procedures, long-term outcome, information on withdrawal symptoms, and reasons for relapse (Green, 1999). Nevertheless, hypnosis continues to be viewed with great interest among smokers considering treatment options for smoking cessation (Sood et al., 2006).

Recent theoretical advances in the field of hypnosis involving the application of social cognitive learning theory (Kirsch, Capafons, Cardena-Buelna, & Amigó, 1999) have generated renewed interest in this treatment modality for smoking

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cessation, providing a theoretical foundation for empirical research on the effectiveness of hypnosis and mechanisms of change. For example, response expectancies, motivational factors, and nonhypnotic suggestibility are thought to be important mechanisms in determining the effects of both hypnotic and nonhypnotic suggestions (Braffman & Kirsch, 1999; Milling, Kirsch, Allen, & Reutenauer, 2005).

We undertook the present study to determine whether a specific hypnosis intervention would prove to be more effective in helping smokers quit compared with standard behavioral counseling when both treatments are combined with NP. We selected a hypnosis treatment that was designed to promote commitment to sustained abstinence and self-regulatory coping responses to enhance smoking cessation and relapse prevention (Capafons, & Amigó, 1995; Lynn et al., 1993), incorporating suggestions and guided imagery procedures developed by Spiegel (1994), Lynn et al. (1993), Green (1996, 1999), and Gorassini and Spanos (1986). If this hypnosis intervention proved to be superior or even roughly equivalent to behavioral counseling, it would offer another option for smokers who want to quit.

Methods

Participants

Between September 2001, and December 2003, we enrolled 176 men and 110 women at the San Francisco Veterans Affairs Medical Center (Figure 1). Participants were current smokers who were interested in quitting and reported smoking at least 10 cigarettes per day during the pre-enrollment week. Patients who had a contraindication to nicotine replacement ($n=9$) were excluded. Local institutional review board approval was obtained and all participants provided written informed consent. We assessed readiness to quit using the Stages of Change model (Prochaska & DiClemente, 1983) and recruited participants who were in the contemplation or action stage of quitting.

A total of 81 (22%) eligible smokers declined to enroll. Sixteen (6%) of those randomized did not attend the second session of treatment or receive the nicotine patches (NP), yielding a baseline of 270 participants; 141 in the hypnosis arm and 129 in behavioral counseling. Of those who did not attend the second session, 12 were randomized to behavioral

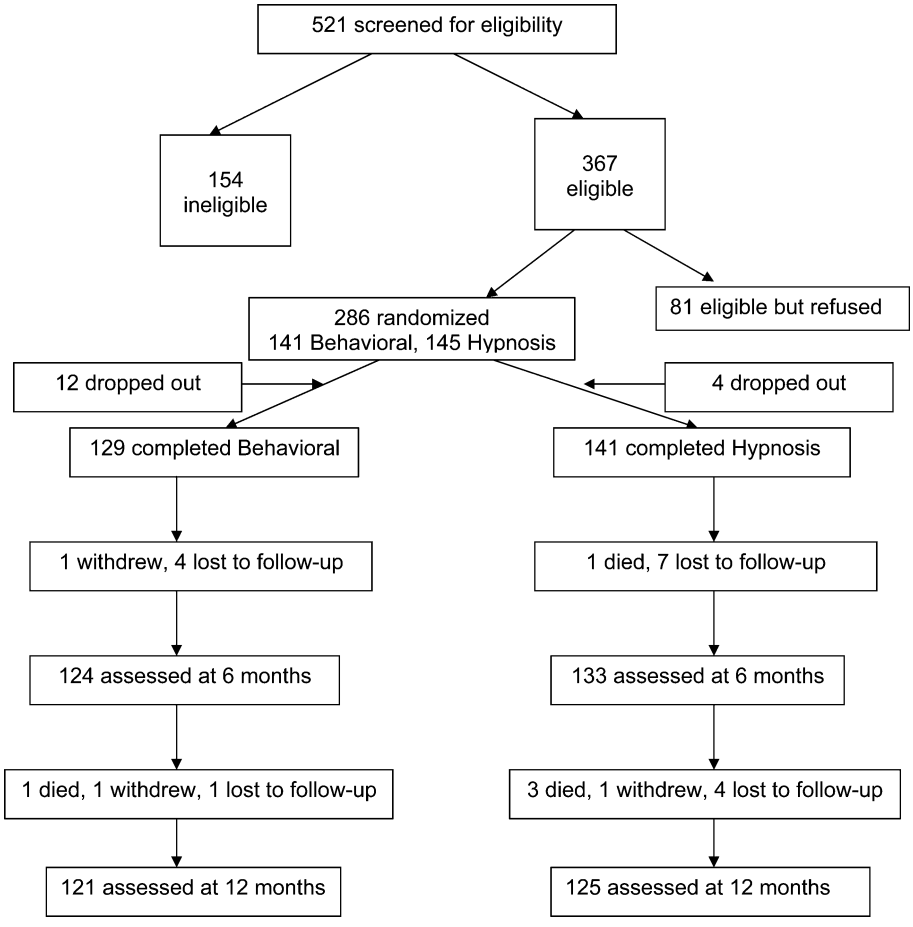

Figure 1. Participant flow chart.

counseling and 4 were randomized to hypnosis. Of the 270 participants who attended both sessions and received NP, 16 (6%) were lost to follow-up, 3 (1%) withdrew, and 5 participants (2%) died. Analyses that considered lost-to-follow-up participants as smokers did not include the 5 participants who died. Thus, 246 subjects (125 in the hypnosis arm and 121 in the behavioral arm) completed the final follow-up assessment at 12 months and the data for 265 subjects (137 in the hypnosis arm and 128 in the behavioral arm) were used in the analyses that considered lost-to-follow-up participants as smokers.

Interventions

We randomly assigned participants to the two study arms. The two interventions were equivalent in terms of the amount of contact time with the counselor. Participants in both treatment arms were given a two-month supply of NP with the initial dose (either 21 or 14 mg) based on the number of cigarettes smoked per day before enrollment. Intervention participants in both study arms received three follow-up telephone counseling calls at weeks 3, 4, and 6. The telephone intervention sessions, which lasted about 20 min, continued the skills training initiated during the initial counseling session. Participants who had relapsed were encouraged to set new quit dates.

Hypnosis intervention

The hypnosis intervention was administered by a public health educator who received intensive training and ongoing supervision from the first author. The hypnosis intervention was scripted and audiotaped. Participants randomized to the hypnosis treatment group participated in two 60-min face-to-face sessions of hypnosis training and were provided with an audiotape of this training to use daily at home. The hypnosis intervention utilized suggestions and guided imagery procedures developed by Spiegel (1994), Lynn et al. (1993), Green (1996, 1999), and Gorassini and Spanos (1986). Learning, practicing, and employing hypnotic skills in resisting the urge to smoke were core components of this intervention. The goal of this treatment was for participants to master hypnosis skills and to use these skills to increase motivation and self-efficacy for resisting temptations to smoke. Hypnosis was viewed as a set of skills and "self-directed responses to suggestions" aimed at facilitating self-control over smoking behavior and motivation for quitting and continued abstinence from smoking. Participants were provided with a menu of skills for coping with withdrawal symptoms and the urge to smoke. Hypnotic suggestions encouraged relaxation, commitment to quitting, self-image as a nonsmoker, ability to resist the urge to smoke, mood management, and development of a healthy lifestyle. Suggestions involving "anchoring" gestures were included to help participants to generate adaptive coping responses to sustain abstinence from smoking in "high-risk" situations. The hypnosis suggestions for both sessions were provided on audiotape so that participants could practice this technique on their own. The hypnotic suggestions and use of the training audiotape were reinforced during the three follow-up phone calls.

Behavioral intervention

Smokers randomized to the evidence-based behavioral intervention were counseled in two face-to-face sessions, each lasting 60 min, and during three 20-min follow-up phone calls at weeks 3, 4, and 6. In these sessions, the dangers of smoking and the benefits of quitting were reviewed, participants' knowledge, beliefs, and potential barriers to smoking cessation were assessed, and counter-arguments to belief barriers were provided. Behavioral self-management techniques to counter relapse triggers were also discussed and rehearsed. The behavioral intervention was also administered by a public health educator and was based on social learning theory (Bandura, 1997) and the Stages of Change model (Prochaska & DiClemente, 1983).

Data collection measures

History of alcohol/drug use and history of depression were measured on single items on which participants reported presence or absence of such a history. To measure hypnotic depth, we asked the participants to rate their experience of depth during both hypnosis sessions on a scale from 1 (lowest level of depth) to 40+ (highest level of depth). To measure expectancy of intervention helpfulness at baseline, participants were asked to rate expected helpfulness of each intervention on a 3-point scale from 1 (not helpful) to 3 (very helpful).

At the end of treatment, to assess use and perceived helpfulness of various strategies included in the hypnosis treatment, participants were asked whether or not they used specific strategies and how helpful they found the strategies they used on a 3-point scale from 1 (not helpful) to 3 (very helpful). These strategies included: repeating the key phrase, using the "anchor" cue when feeling stressed, imagining their special place, listening to the hypnosis audiotape, practicing hypnosis regularly, and hypnotizing themselves. To assess use and helpfulness of quitting strategies taught in the

behavioral treatment, participants were asked whether or not they used specific quitting strategies and how helpful they found the techniques they used on a 3-point scale (1=not helpful, 3=very helpful). These strategies included: reminding themselves of their reasons for quitting, using oral substitutes, planning responses for difficult situations, exercise, using relaxation, changing their daily routine, and rewarding themselves for not smoking.

Our measure of nicotine withdrawal symptoms was a modified version of the Minnesota Nicotine Withdrawal Scale (Hughes & Hatsukami, 1986) that was used by Hurt et al. (1997) in their study of bupropion for smoking cessation. It consisted of nine items (craving, depressed mood, difficulty falling asleep, awakening during the night, irritability, anxiety, difficulty concentrating, restlessness, and increased appetite). Participants responded to each item, using a 5-point scale (0=absent; 4=severe). A total nicotine withdrawal score was calculated with a range of 0–36. This measure was administered at weeks 2, 3, and 9.

We collected baseline data on age, race, sex, marital status, presence of other smokers in the household, level of education, history of drug or alcohol abuse, and history of depression. Body mass index (weight in kg divided by height in meters^2) was calculated using self-reported data. Medical problems were recorded based on participant interviews. We obtained self-reported data on pre-enrollment level of smoking, pack-years of smoking, and number of prior quit attempts. Estimated level of tobacco addiction was based on the Fagerström Test of Nicotine Dependence (FTND; Fagerström, Heatherton, & Kozlowski, 1992). A 20-item self-efficacy questionnaire (Prochaska, Velicer, DiClemente, & Fava, 1988) was administered at baseline. We assessed depressive symptoms using the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996). On the BDI measure, total scores range from 0 to 63 and are divided into four levels of depression (0–13 minimal, 14–19 mild, 20–28 moderate, and 29–63 severe). At each follow-up phone call, information was obtained regarding smoking status, nicotine withdrawal symptoms, and use of NP.

At the 6-month telephone follow-up, additional data were obtained regarding quit attempts since enrollment, current level of smoking, and date of the last cigarette smoked. At the 12-month telephone follow-up, we collected data on self-reported smoking status, alcohol consumption, presence of smokers in the household, quit attempts over the previous 6 months, date of last cigarette smoked, longest period of tobacco abstinence, duration of use of nicotine therapy, and use of other tobacco products.

Smoking cessation and biochemical validation

We recorded self-reported point-prevalence tobacco abstinence (defined as no smoking, not even a puff, for 7 days) at 6 and 12 months. For participants who reported they had quit smoking, we obtained saliva samples for cotinine testing and used levels $\geqslant$15 ng/ml as an indicator of current tobacco use. For self-reported quitters with cotinine levels $\geqslant$15 ng/ml, we ascertained by telephone interview whether they were using nicotine replacement on the follow-up date. There were four such participants at 6 months and six participants at 12 months who were analyzed as smokers. We considered participants who had stopped smoking cigarettes, but were using other tobacco products, as smokers. Saliva samples were stored at -21°C until assayed for cotinine. For self-reported quitters who provided no saliva specimen, we accepted a statement by a spouse or significant other regarding their smoking status. At 6 months, there were 17 such participants (7 from the hypnosis group and 10 from the behavioral group); and at 12 months, there were 11 (6 from the hypnosis group and 5 from the behavioral group). Such proxy reports have been shown to be reliable (Chen, Rennie, & Dosman, 1995).

Statistical analysis

To compare the baseline variables, we used two-sample *t*-tests and Wilcoxon rank-sum tests for continuous variables and chi square tests for categorical variables. To compare treatment outcomes, we calculated the relative risk (RR) and 95% confidence interval (*CI*) associated with randomization to the hypnosis intervention using standard formulae. We used multiple logistic regression models that controlled for treatment assignment to examine baseline variables as independent predictors of quitting and calculated additional logistic regression models that included interactions between treatment assignment and baseline variables.

Results

There were no significant differences in baseline characteristics between the two treatment groups (all $p>.05$) (Table 1). Participants were predominantly unmarried, white, and middle-aged. Smoking histories were also similar in the two groups. Participants were moderate to heavy smokers with a mean of 29 pack-years of smoking, and were smoking just over one pack of cigarettes daily at the time of enrollment. History of depression was highly prevalent in both groups (33% in the hypnosis group and 40% in the behavioral group). Mean expected helpfulness ratings were similar for the two

Table 1. Baseline characteristics of the study participants (N=286).

Characteristic*	Hypnosis group (n=145)	Behavioral group (n=141)	p value†
Age (years)	45±12	45±13	.90
White (%)	101 (70)	96 (68)	.80
Women (%)	61 (42)	49 (35)	.23
Married (%)	37 (26)	34 (24)	.70
Veteran (%)	47 (32)	54 (38)	.32
Level of education (years)†	15±2	14±2	.25
Current tobacco use (cigarettes/day)‡	20±8	20±10	.63
Smoking (pack-years)	29±21	30±24	.66
Beck Depression Inventory Score†	11±9	10±9	.39
Fagerström Score†	5±2	5±2	.75
Expected helpfulness (scale 1–5)	4±0.8	4±0.9	.42
Coronary disease (%)	8 (6)	10 (7)	.63
Vascular disease (%)	10 (7)	6 (4)	.40
COPD (%)	15 (10)	18 (13)	.58
History of tobacco-related cancer (%)	3 (2)	2 (1)	1.00
Diabetes mellitus (%)	9 (6)	9 (7)	1.00
Hypertension (%)	29 (20)	25 (18)	.65
Alcohol abuse (%)	30 (21)	28 (20)	1.00
Drug abuse (%)	22 (15)	25 (18)	.63
History of depression (%)	47 (33)	55 (40)	.27

*Values are means ± SD. Other values denote the number and percentage of subjects. †N=286 for level of education achieved; N=285 for Beck Depression Inventory; N=285 for Fagerström Score. ‡Current tobacco use was defined as the average number of cigarettes smoked per day.

intervention groups: 4.20 (SD=0.76) for the hypnosis group and 4.12 (SD=0.85) for the behavioral group (p=.329).

A comparison of the study medication log kept during the intervention indicated that the two treatment groups did not differ in their use of NP. The mean number of NPs used by participants was 33 (SE=1.9) in the hypnosis group and 36 (SE=1.8) in the behavioral group (p=.354). In addition, severity of nicotine withdrawal symptoms was compared for the two treatment groups at weeks 2, 3, and 9. Severity of nicotine withdrawal symptoms was significantly higher for the behavioral group (M=13.5, SD=7.3) than for the hypnosis group (M=10.9, SD=5.7) at week 2 (p=.03), but was not significantly different between the two treatment conditions at weeks 3 and 9.

Using follow-up data from those participants who were available at the 6-month assessment, the 7-day point-prevalence quit rate, based on self-report alone and including dropouts as smokers, was 29% (40/140) for the hypnosis group and 23% (29/129) for the behavioral counseling group (RR=1.27; 95% CI 0.84–1.92, p=.27). Based on biochemical or proxy confirmation, the point-prevalence quit rate was 26% (36/140) for the hypnosis group versus 18% (23/129) for the behavioral group (RR=1.44; 95% CI 0.91–2.30, p=.14). At 12 months, the self-reported point-prevalence quit rate, including dropouts as smokers, was 24% (33/137) for the hypnosis group and 16% (21/128) for the behavioral group (RR=1.47; 95% CI 0.90–2.40, p=.13). Based on biochemical or proxy confirmation, the point-prevalence quit rate was 20% (27/137) for the hypnosis group and 14% (18/128) for the behavioral group at 12 months (RR=1.40; 95% CI 0.81–2.42, p=.25). Results were similar when participants who were lost to follow-up were excluded from the analyses (Table 2). Rates of self-reported quitting were higher than those confirmed biochemically. However, the magnitude of the benefit associated with both interventions at 1 year was similar in all the statistical models.

Because other variables were associated with point-prevalence quitting, we examined additional logistic regression models for both measures of smoking status (self-reported and validated abstinence) at 6 and 12 months. The variables associated with point-prevalence quitting included gender, ethnicity, history of alcohol abuse, history of depression, number of other smokers in the household, expected helpfulness of treatment, nicotine dependence measured on the FTND, and number of quit strategies. In addition, we examined the interactions between treatment assignment and gender, ethnicity, alcohol history, depression history, and number of quit strategies. Only the logistic regression models predicting self-reported and validated

Table 2. Smoking cessation rates and the relative risk of quitting.

	Hypnosis group, no. (%) quit	Behavioral group, no. (%) quit	Relative risk (95% CI)	p value
Self-report at 1 week	77/141 (55)	73/129 (56)	0.97 (0.79–1.20)	.81
Self-report at 2 weeks	64/141 (45)	68/129 (53)	0.87 (0.68–1.11)	.28
Self-report at 8 weeks	54/141 (38)	47/129 (36)	1.06 (0.78–1.44)	.80
Self-report at 6 months	40/140 (29)	29/129 (23)	1.27 (0.84–1.92)	.27
Validated* at 6 months	36/140 (26)	23/129 (18)	1.44 (0.91–2.30)	.14
Validated† at 6 months	36/133 (27)	23/124 (19)	1.44 (0.90–2.28)	.14
Self-report at 12 months	33/137 (24)	21/128 (16)	1.47 (0.90–2.40)	.13
Validated* at 12 months	27/137 (20)	18/128 (14)	1.40 (0.81–2.42)	.25
Validated† at 12 months	27/125 (22)	18/121 (15)	1.45 (0.85–2.50)	.19

CI, confidence interval. *Validated by saliva cotinine level or spousal proxy. Participants lost to follow-up were considered smokers. †Validated by saliva cotinine level or spousal proxy. Participants lost to follow-up were excluded.

quitting at 6 months were statistically significant (Wald $\chi^2=26.58$, $p<.02$; Wald $\chi^2=26.75$, $p<.02$, respectively). Of the possible interactions examined, only the interaction of treatment assignment with history of depression was significant in predicting validated quitting at 6 months ($p<.01$). As shown in Figure 2, at 6 months, in the hypnosis condition, participants with a history of depression had greater validated quit rates than those without a history of depression while the relationship was reversed in the behavioral condition.

For participants assigned to the hypnosis group, we examined the relationship between perceived depth of hypnosis and outcome. The mean perceived depth averaged across the two hypnosis intervention sessions was not significantly related to validated quitting at 12 months ($M=14.7$, $SD=8.7$ for validated quitters; $M=13.4$, $SD=8.4$ for smokers, $p=.50$).

We also investigated the relationship between use of specific quitting strategies and validated outcome for both groups combined with dropouts counted as smokers. Abstinent participants reported using an average of 4 quit strategies ($SD=2.8$) compared with a mean of 2.8 ($SD=2.8$) for smokers ($p<.001$). As shown in Figure 3, the validated point-prevalence quit rates at 6 and 12 months were significantly higher for participants who used more quitting strategies (6 months: Jonckheere–Terpstra Z-test$=3.36$, $p<.001$; 12 months: Jonckheere–Terpstra Z-test$=3.20$, $p<.002$). In addition, among participants in the hypnosis group, the regular practice of hypnosis (i.e., listening to the audiotapes at least once a week) was significantly associated with validated quitting at 12 months ($r=.33$, $p<.01$). Furthermore, validated quitting at 12 months was positively associated with the rated helpfulness of using a key phrase ($r=.35$, $p<.01$) and using their "anchor" when feeling stressed ($r=.31$, $p<.05$).

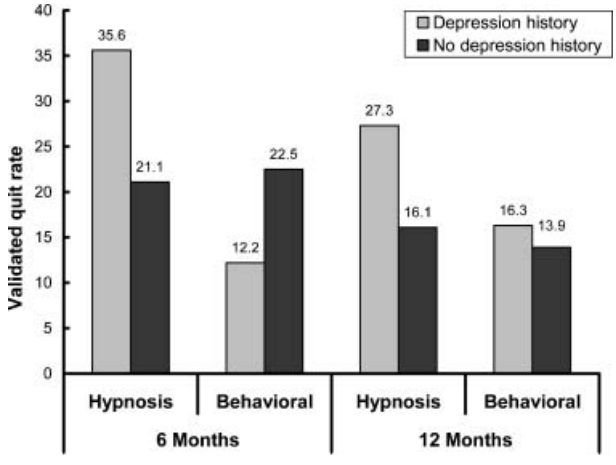

Figure 2. Validated point-prevalence quit rates by treatment assignment and history of depression.

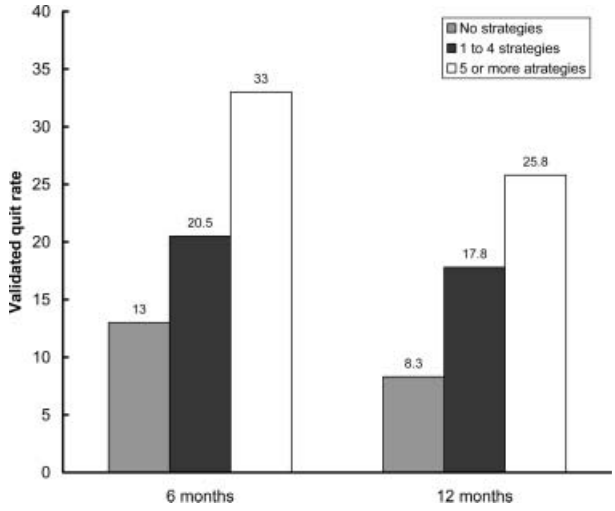

Figure 3. Validated point-prevalence quit rates by number of quit strategies used across both treatments.

Discussion

We found that hypnosis combined with NP yielded long-term smoking cessation rates that were slightly higher than those for behavioral counseling and NP. In measuring primary outcomes, we employed several definitions of smoking cessation. Our cessation findings based on self-report as well as those validated by biochemical analysis or proxy report were comparable. In logistic models that controlled for other predictors of cessation, treatment assignment was not associated with a statistically significant difference in the probability of cessation. Interestingly, in the sub-group of smokers with a history of depression, the validated point-prevalence quit rates at 6 and 12 months were higher for those who participated in the hypnosis intervention. Furthermore, the number of dropouts from treatment was higher for the behavioral group than for the hypnosis intervention. This result is consistent with the observation that people commonly view hypnosis as a popular and viable method for achieving smoking cessation. Taken together, these results support the efficacy of hypnosis as a smoking cessation treatment, particularly among smokers with a history of depression.

In recent studies, hypnosis has been shown to generate quit rates that are comparable with those for standard treatments combining counseling and nicotine replacement (Green, 1999). In one recent review (Green & Lynn, 2000), it was concluded that hypnosis yielded higher quit rates than wait-list control groups, and was generally comparable with other interventions that did not involve hypnosis.

The design and assessment methodology of this study did not allow us to determine how hypnosis achieved its effect. Number of quitting strategies was found to be predictive of successful outcome, but the

two treatment groups did not differ on this variable. Among participants in the hypnosis group, perceived depth of hypnotic response was not found to be predictive of successful outcome. However, those participants who reported practicing the hypnosis technique regularly (i.e., at least once a week) were found to have higher quit rates. In addition, participants in the hypnosis treatment condition reported significantly less severe nicotine withdrawal symptoms than those in the behavioral group, but only at week 2. Future studies might investigate the impact of hypnosis on withdrawal more closely.

Mechanisms underlying the utility of hypnosis for smoking cessation are unknown, but may involve several factors, including expectation and placebo factors, enhancement of responsiveness to suggestions, alteration of unconscious impulses that serve to maintain smoking, and enhancement of ability to focus attention on treatment strategies (Green, 1999; Milling et al., 2005).

According to the cognitive behavioral model of hypnosis, hypnotic treatments may affect behavior change by means of cognitive, behavioral, and educational aspects of the suggestions given by the therapist (Schwartz, 1992). Reinforcement of motivational and self-regulation messages may facilitate initial cessation, resistance to the temptation to smoke, and maintenance of abstinence (Lynn et al., 1993). Alternatively, response expectancy has been posited as the causal mechanism in both hypnosis and placebo interventions (Kirsch, 1997; Milling, Reardon, & Carosella, 2006). According to this perspective, hypnosis is thought to achieve its effect by changing the person's expectations for nonvolitional reactions to hypnotic suggestions. Some experts view hypnosis as a nondeceptive placebo, creating a cognitive set or anticipation of a nonvolitional response (Kirsch, 1999). Whether the effects of hypnosis are partially or fully related to the role of response expectancy is not known. In the present study, the two treatment groups did not differ in their baseline ratings of the expected helpfulness of the intervention to which they were assigned.

According to self-regulation theory, hypnosis is considered a state of receptive, attentive concentration that is designed to facilitate responsiveness to suggestions regarding behavior change (Capafons & Amigó, 1995). That is, the individual learns, practices, and applies hypnotic suggestion as a coping strategy on a daily basis to initiate and maintain a desired behavior change. Furthermore, the hypnotic suggestions used in the present study included visual imagery aimed at increasing motivation and self-efficacy for quitting and remaining abstinent from smoking. For most people, adding a hypnotic induction to imaginative suggestions yields an increase in responding (Braffman & Kirsch, 1999; Milling et al., 2005).

In interpreting these findings, study limitations need to be considered. For instance, since hypnosis was combined with NP, we are unable to draw any conclusions regarding the efficacy of hypnosis as a single treatment modality. Another limitation was the fact that the research assistants conducting the follow-up assessment phone calls were not blind to the treatment conditions of the participants. In addition, although we did have a comparison group, we did not include a placebo control and are consequently unable to comment on how the hypnosis or behavioral counseling groups might have compared with a placebo control. We also do not know whether a larger study might have demonstrated statistically significant differences between the study arms, especially since the quit rates in the hypnosis arm were somewhat higher than those in the behavioral group. Furthermore, it would be premature to draw any conclusions regarding the use of hypnosis for smokers with history of depression. Our measure of history of depression was not based on a diagnostic interview and did not differentiate between major, single-episode, recurrent, or other forms of depression. Finally, we are unable to determine mechanisms by which treatment success was achieved in the hypnosis treatment group.

It might be argued that we were unable to determine the degree to which the NP in both treatment conditions was responsible for the outcomes achieved. However, recent meta-analyses that form the empirical basis for current practice guidelines (Fiore et al., 2000; Ranney et al., 2006) clearly indicate not only that NP is an effective treatment for nicotine dependence, but also that brief counseling added to NP significantly increases validated long-term quit rates. In the present study, the two treatment groups did not differ in their use of NP. Thus, the quit rates generated by the hypnosis treatment group in the present study, which compared favorably with those achieved by the behavioral counseling condition, provide support for hypnosis as an additional smoking cessation intervention.

In conclusion, the validated point-prevalence quit rates in the hypnosis treatment arm exceeded those of the behavioral counseling arm at both 6 and 12 months of follow-up. Among participants with a history of depression, hypnosis yielded a significantly higher point-prevalence quit rate at 6 and 12 months than the behavioral treatment. Among participants randomized to the behavioral group, the quit rate for participants with a history of depression was considerably lower at 6 months than the quit rate for participants without a history of depression, but

slightly higher at 12 months. Further research is needed to replicate and explore the meaning of these post-hoc findings. We believe that the results of our study support the use of hypnosis as an evidence-based intervention for smoking cessation, at least when combined with NP.

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